optical sidebands, the modulator being driven by a RF signal at a frequency ω_m;

(c) an optical filter coupled to an output of the modulator for suppressing or passing one of the two sidebands; and

(d) an optical path coupling an output of the filter to the laser for injection locking.

REMARKS

First, the Examiner is thanked for withdrawing the election/restriction requirement set forth in the last official action.

It is noted, however, that the Examiner rejects the claims in this application under 35 U.S.C. 103, alleging that the claims are unpatentable in view of US Patent No. 5,929,430 in view of US Patent No. 5,723,856 and US Patent No. 5,084,779. The Examiner's rejections of the claims in this application are respectfully traversed.

First, turning to the Examiner's assertions on page 3 of the official action, the Examiner starts off by saying that the present invention is "deemed" to be a combination of well-known elements. With all due respect to the Examiner, most patented inventions are combinations of well-known elements. Consider the patents by Yao cited by the Examiner. While Yao definitely makes contributions to the art, would not the Examiner characterize Yao's inventions to be combinations of well-known elements? That fact does not render an invention unpatentable, and therefore, with all due respect to the Examiner, the fact that an invention might be a combination of well-known elements is irrelevant. What is important is whether or not the invention, as represented by the claims, would be obvious to a person of ordinary skill in the art.

The Examiner goes on to assert that the '430 patent teaches a single frequency laser 102.

With all due respect to the Examiner, where does the terminology "single frequency laser" come from? Does that terminology appear in the '430 patent? While there is a reference to the possibility of laser 102 being a single mode laser at column 4, line 23, a person skilled in the art would realize that the "ring" laser formed by the laser and its feedback path can only operate as a mode-locked laser in order that "the sidebands of each modulated mode will coincide with its neighboring bands, causing injection-lock of its neighboring bands with itself" as explained at column 6, lines 4-6.

Additionally, the Examiner is requested to read the paragraph bridging columns 6 and 7 and the immediately following paragraph. Note that at this point the patent application teaches against the use of a non mode-locked laser.

The Examiner may wish to also consider Figure 5a of the '430 patent. It is submitted that the '430 patent teaches that one would not want to use a single frequency laser! Does the Examiner still assert that laser 102 emits a single frequency? If so, then the Examiner is respectfully requested to comply with the rules of practice by presenting an Affidavit in full compliance with 37 C.F.R. 1.104 (d)(2) since the Examiner is obviously presenting information which he believes he knows based upon his own understanding as opposed to information found in the prior art reference being relied upon.

Since Yao '430 teaches away from a single frequency laser having a laser output for delivering laser light at a frequency ω_0 as required by claim 1, the Examiner's rejection of claim 1 based upon, at least in part, Yao '430 falls apart.

The Examiner goes on to discuss Mach-Zehnder (M-Z) modulators. The Examiner asserts that a M-Z modulator can "separate wavelengths (in effect working as a filter)." It is believed that this assertion made by the Examiner is not technically correct. The Examiner is respectfully requested either to withdraw the assertion, to supply a prior art reference which supports his contention or to supply the Affidavit required by 37

C.F.R. 1.104(d)(2) setting forth the facts which are within his personal knowledge that he is relying upon in making this assertion.

The Examiner then asserts that it would be obvious to substitute the M-Z modulator of the '856 patent into the optical circuit of Figure 1 of the '430 patent. First, it is to be noted that the inventors of the '430 patent are the same inventors as the inventors of the '856 patent. It is beyond question that the inventors of the '430 patent, at the time they filed the application which matured into the '430 patent, were well aware of M-Z modulators as evidenced by their own '856 patent. Thus, if it were so obvious to make the substitution suggested by the Examiner, one would think that the inventors would have disclosed or at least suggested such an "obvious" substitution in their own patent application. Given the fact that they did not, suggests to a person of ordinary skill in the art that the substitution is not obvious. Indeed, it is submitted that the Examiner is making the substitution based upon a hindsight analysis of Applicant's claims, as opposed to anything disclosed by the inventors of the '430 and '856 patents.

Continuing on with the Examiner's analysis, the Examiner asserts that substituting the M-Z modulator of '856 into '430 would eliminate in '430 the optical coupler 110 and the path 106. With all due respect to the Examiner, the Examiner's assertion is not understood. Just what is to be substituted for what in Figure 1 of the '430 patent? How does one get rid of both the optical coupler 110 and path 106? What is the motivation for doing this? Also, how does one eliminate path 106 and at the same time maintain the optical feedback loop as asserted by the Examiner on page 3 of the official action?

If the Examiner is going to continue to reject claims in this application based upon a combination of '430 and '856, the Examiner is respectfully requested to make clear just what combination he has in mind. The Applicant should not have to speculate as to what is being connected to what when a M-Z modulator is somehow inserted into Figure 1 of the '430 patent. The Examiner goes on to assert that the M-Z modulator can be adjusted to feedback "a particular wavelength". How does that happen? More

importantly, what is the basis for this alleged "fact" asserted by the Examiner? If this is a fact within the Examiner's own knowledge, then the Examiner is respectfully requested to produce the Affidavit required by 37 C.F.R. 1.104(d)(2) or to supply a reference which supports his assertion.

Towards the bottom of page 3 of the official action, indeed, at the penultimate line on that page, the Examiner makes reference to "another laser" which the Examiner asserts "was described above". Just what laser is the Examiner referring to? And just where was that "another laser" "described above" as asserted by the Examiner?

Turning to page 4 of the official action, the Examiner asserts that it would have been obvious to turn to the Stanley reference to learn about a filter, particularly filter 19 of Figure 3 thereof and that it would thus be obvious to provide a filter as specified in claim 1. With all due respect to the Examiner, it is noted that Stanley's filter 19 is used in connection with a receiver 19. From the earliest days of radio it has been known to use filters with receivers. Indeed, the inventors of the '430 and '856 patents were also familiar with filters. See, for example, filter 88 in Figures 7a and 7b of the '856 patent. But just because the inventors of the '430 and '856 patents and, indeed, Mr. Stanley, were all aware of filters, how does that make a "filter coupled to an output of the modulator" obvious?

Also, at the end of the first whole paragraph on page 4 of the official action the Examiner asserts that the result of "this" would be a "single frequency laser output." Since there is apparently nothing in the prior art references which supports the Examiner's contention, it seems that the Examiner's contention is coming from facts within his own knowledge or purview. Again, the Examiner is respectfully requested to produce the Affidavit required by 37 C.F.R. 1.104(d)(2) or to withdraw the assertion.

Turning to the Examiner's assertions regarding claims 11-18, the Examiner asserts that the method is "inherent as product by process in the combination." Just how is claim 11

a process of making the product of claim 1, for example, or any other apparatus claimed in this application? The Examiner is respectfully requested to explain himself since it is not understood how the laser system of claim 1 could be manufactured (as a product) according to the method of claim 11. Indeed, claim 11 is not directed to a method of making a laser, but rather to a method of "enhancing the modulation bandwidth of a distributed feedback laser." Since claim 11 is clearly not a method of manufacturing a laser, the Examiner's assertions are simply incorrect.

If the Examiner continues to reject claim 11 on prior art grounds, then the Examiner is respectfully requested to read the limitations thereof upon whatever prior art reference the Examiner cites in compliance with rule 37 C.F.R. 1.104 (c)(2).

Turning briefly to claim 12, how is that claim allegedly anticipated by the combination of three references cited by the Examiner? Claim 12 recites a SAW device. Where is that taught by the cited references?

Claims 19 and 23 were also rejected based upon the same three references which the Examiner cited *vis a vis* claim 1. Since the Examiner's analysis did not focus on claims 19 or 23, but rather focused on the language of claim 1, the Examiner's rationale for rejecting claims 19 and 23 is not as clear as it could be. Having said that, the Applicant contends that it would not be obvious to combine the three references cited by the Examiner since there is simply no motivation to make the suggested combination. Indeed, as the Examiner points out, the elements cited in the claims are basically well-known elements. Indeed, the inventors of the '430 and '856 patents seemed to be familiar with most, if not all, of the elements of the claims. Yet, they did not find it obvious to combine the elements in the manner suggested by the Examiner (although the Applicant does not understand exactly what combination that the Examiner is suggesting, as already noted above), in spite of the Examiner's assertion that "simplification and improvement" of the Yao inventions would result. With all due respect to the Examiner, it is believed that the combination suggested by the Examiner

(to the extent it is understood) does not go together so easily as the Examiner suggests and, moreover, it is submitted that the combination suggested by the Examiner is stimulated by Applicant's own disclosure as opposed to anything which the Examiner has pointed to in the cited references.

This application has been amended to include a few additional subclaims and to correct obvious editorial errors in a few of the present claims. The amendments made to the claims presently on file do not have any effect whatsoever on the scopes of those claims. Reconsideration of this application as amended is respectfully requested.

The Commissioner is authorized to charge any additional fees which may be required or credit overpayment to deposit account no. 12-0415. In particular, if this response is not timely filed, then the Commissioner is authorized to treat this response as including a petition to extend the time period pursuant to 37 CFR 1.136 (a) requesting an extension of time of the number of months necessary to make this response timely filed and the petition fee due in connection therewith may be charged to deposit account no. 12-0415.

I hereby certify that this correspondence is being deposited with the United States Post Office with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, Washington, D.C., 20231 on

December 19, 2002

(Date of Deposit)

Corinda Humphrey

(Name of Person Signing)

Corinda Humphrey

(Signature)

December 19, 2002

(Date)

Respectfully submitted,

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Appendix A

(Amended) Claim 27. The laser system of claim 23 wherein the filter is ~~is~~ a Bragg Fiber Grating.